

Appl. No. 09/826,575
Amdt. Dated June 23, 2004
Reply to Office action of Mar. 23, 2004

Amendment to the Claims:

Listing of Claims:

1. (Currently amended) An apparatus for testing equipment located in a local environment by presenting a detectable indicator gas therein, said apparatus comprising:

a one-piece, polymeric pump and container portion combination;

a chemical substance stored in said container portion, said substance being reactive with air from the local environment;

wherein said pump is operable to draw air into said container portion and in contact with said chemical substance to generate a detectable indicator gas, wherein said pump is integrally formed as one piece, ~~and joined seamlessly,~~ with said container portion such that said pump and said container portion are in fluid communication and define [[an]] a substantially fluid impermeable internal environment that includes said chemical substance and is sealed from the local environment; and

an outlet to said container that is severable to direct said indicator gas into the local environment.

2. (Original) The testing apparatus of claim 1, wherein said pump is a manually squeezable bulb.

3. (Original) The testing apparatus of claim 1, wherein said pump is selected from the group of manually operable pumps consisting of: a manually squeezable bulb, a bellows-driven pump, a syringe, and combinations thereof.

4. (Canceled)

5. (Original) The testing apparatus of claim 1, wherein said container portion and said pump are formed from a plastic material.

6. (Original) The testing apparatus of claim 5, wherein said plastic material is low density polyethylene.

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7. (Original) The testing apparatus of claim 1, wherein said container portion is formed from a first material and said pump is formed from a second material distinct from said first material.

8. (Previously presented) The testing apparatus of claim 1, wherein said container portion and said pump are formed from a laminate of at least a first material layer and a second material layer distinct from said first material layer, said first material layer having a polymeric material and said second layer being a material layer that is substantially more impermeable than said polymeric layer,

wherein said second material layer completely encases said first material layer, said container portion, and said pump.

9. (Original) The testing apparatus of claim 1, wherein said container portion and said pump form a substantially permanent molded structure.

10. (Original) The testing apparatus of claim 1, wherein said chemical substance is reactive with the container environment, upon operation of the pump, to generate said indicator gas.

11. (Original) The testing apparatus of claim 1, wherein said chemical substance is selected such that said chemical substance and air drawn into said container portion generate a scented indicator gas upon contact.

12. (Original) The testing apparatus of claim 1, wherein said chemical substance is reactive with air to produce an irritant gas.

13. (Original) The testing apparatus of claim 12, wherein said chemical substance is liquid SnCl_4 and said indicator gas is an acid vapor fume.

14. (Original) The testing apparatus of claim 1, wherein said chemical substance is reactive with the container environment, upon operation of the pump, to generate a visually detectable indicator gas.

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15. (Original) The testing apparatus of claim 1, wherein said pump has a hole to allow finger release of pressure.

16. (Original) The testing apparatus of claim 1, further comprising an exterior layer of laminate that seals the container.

17-21 (Canceled)

22. (Currently amended) A method of fit testing respiratory protection equipment in a local environment by presenting a detectable indicator gas therein, said method comprising the steps of:

storing a chemical substance, reactive with air to produce an indicator gas in the form of irritant smoke, in a container formed substantially from a polymeric material;

providing a polymeric squeeze bulb device in operative communication with the container, and formed integrally, as one piece, ~~and seamlessly joined~~, therewith, such that the squeeze bulb device and the container are in fluid communication and define a substantially fluid impermeable ~~[[an]]~~ internal environment that is sealed from the local environment;

breaking a portion of the container ~~[[tube]]~~ to provide an outlet;

operating the squeeze bulb to draw air past the chemical substance to produce a human detectable indicator gas in the form of irritant smoke;

directing the indicator gas outward of the container and into the local environment;
and

detecting the indicator to determine the operability of the equipment in the local environment.

23. (Original) The method of claim 22, wherein the indicator gas is a visually observable gas, said detecting step including visually observing the behavior of the indicator gas in the local environment.

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24. (Original) The method of claim 23, wherein said observing step includes visually observing the flow of the indicator gas in the local environment.

25. (Original) The method of claim 22, wherein the chemical substance is liquid SnCl_4 or H_2SO_4 and said step of operating the squeeze bulb generates a chemical reaction producing an irritant indicator gas.

26. (Original) The method of claim 22, wherein the indicator gas is indicator gas having a pre-selected scent, said observing step including detecting the scent of the indicator gas to determine the operability of the equipment.

27-31 (Canceled)

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32. (Currently amended) A method of manufacturing an apparatus for testing equipment in a local environment by presenting a detectable indicator gas therein, said method comprising the steps of:

providing a flexible material;

providing a second material;

integrally forming, as one piece, a container portion and a squeeze bulb portion using the flexible material and applying the second material adjacent the flexible material to form a laminate therewith, wherein [[such that]] the laminate is substantially more fluid impermeable [[less permeable]] than the flexible material; and

storing a chemical substance in the container portion such that upon operation of the bulb to draw air into the container portion, a detectable indicator gas is generated for presentation into the local environment, whereby the container portion and the pump are in fluid communication and define a substantially fluid impermeable [[an]] internal environment that includes a chemical substance and is sealed from the local environment.

33. (Previously presented) The method of claim 32, wherein said step of providing a flexible material includes providing a plastic material.

34. (Previously presented) The method of claim 32, further comprising the step of sealing a breakable end tip of the container tube portion located opposite the squeeze bulb.

35. (Previously presented) The method of claim 32, wherein the step of storing includes storing a chemical that, when contacted by air drawn into the container portion, generates a visually detectable indicator gas.

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36-53 (Canceled)

57. (Previously presented) The method of claim 52, wherein said step of providing a second material includes providing a mylar material.

58. (Currently amended) A method of manufacturing an apparatus for testing equipment in a local environment by presenting a detectable indicator gas therein, said method comprising the steps of:

providing a testing device including the steps of:

providing a container portion,

storing a chemical substance in said container portion, and

using a polymeric material, integrally forming a squeeze bulb as one-piece with the container portion, such that the squeeze bulb is operable to draw air into the container portion to generate a reaction between the chemical substance and the air, and to produce a detectable indicator gas; and

surrounding the testing device with a packaging layer, the packaging layer being substantially liquid and gas impermeable ~~than the polymeric layer~~, such that the chemical substance is stored in a sealed, substantially fluid impermeable environment.

59. (Previously presented) The method of claim 58, wherein the packaging layer is a mylar material.

60. (Previously presented) The method of claim 58, wherein the polymeric material is low density polyethylene.

61. (Previously presented) The method of claim 60, wherein the packaging layer is substantially less permeable than the polymeric material, such that the step of surrounding the testing device substantially reduces the permeability of the testing device.

62. (New) The apparatus of claim 1, wherein said container portion includes a first layer and a second layer both surrounding said chemical substance, said

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second layer being a substantially fluid impermeable layer.

63. (New) The apparatus of claim 62, wherein said second layer is provided by a glass enclosure disposed about said chemical substance.

64. (New) The apparatus of claim 1, wherein said chemical substance is reactive with air to generate irritant smoke.

65. (New) The apparatus of claim 64, wherein said container portion includes a first layer and a second layer both surrounding said substance, said second layer being a substantially fluid impermeable layer.

66. (New) The apparatus of claim 1, wherein said pump and said container portion are joined seamlessly.

67. (New) The method of claim 22, further comprising a step of ensuring that said step of operating the squeeze bulb does not generate a smoke volume exceeding a predetermined volume by selecting a polymeric squeeze bulb having a maximum pumping capacity that is below the predetermined volume whereby the selected squeeze bulb is affixed to the container.

68. (New) The method of claim 22, wherein said storing step includes storing the chemical substance within a substantially fluid impermeable enclosure.

69. (New) The method of claim 68, wherein said storing step includes storing the chemical substance in a breakable glass enclosure disposed within the container; and

wherein said step of operating the squeeze bulb is preceded by a step of breaking the breakable glass.

70. (New) The method of claim 68, further comprising the step of storing the polymeric squeezable bulb device and container in a substantially fluid impermeable bag prior to said breaking and operating steps.

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71. (New) The method of claim 32, wherein said storing step includes storing a chemical substance reactive with air to generate an irritant gas.

72. (New) The method of claim 32, further comprising the step of selecting a squeeze bulb portion, prior to said integrally forming step, having a pumping capacity that is below a predetermined capacity, whereby the integrally forming step forms a one-piece squeeze bulb and container portion apparatus having a maximum pumping capacity below the predetermined capacity.